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THE

BOOK OF NATURE

AND THE

ATTRIBUTES OF GOD.

BY

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Any profit arising from the sale of this work will be devoted to the completion of the Church in Brome Woods.

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'—This our life, exempt from public haunt, finds tongues in trees, books in the running brooks, sermons in stones, and good in every thing."

THE BOOK OF NATURE

AND THE

ATTRIBUTES OF GOD.

READER, my subject is *the Attributes of God written in the Book of Nature.* It is one to which the wisest of men would fail to do justice—it is inexhaustible, for "*there lives and works a soul in all things, and that soul is God.*" I can give you but a poor and imperfect translation of some of the passages that are written in the ample page around us. Before I do so, let me disclaim anything approaching to an intention to support a system of Natural Religion. We know that with the aid of Revelation we view but, as it were, the "hinder parts" of the High and Holy One that inhabiteth eternity. We see but through a glass darkly. Much more imperfect, then, must be our view of Him without such aid. The wisdom of the wise in the most enlightened days of Egypt,

Greece, and Rome, was very foolishness. By the philosophers —falsely so called—of heathen times, the most atrocious notions of the Deity were promulgated; men could not by searching find out God. Yet in the days of this ignorance of God, He left not himself without witness, "*in that he did good, and gave men rain from heaven, and fruitful seasons, filling their hearts with food and gladness.*" And it is to some of the appearances of this divine witness that I shall now proceed to direct your attention.

I shall divide the matter I have to bring before you into three parts, containing in order illustrations—

Of the POWER of God.

Of the WISDOM of God.

Of the GOODNESS of God.

The first part shall contain illustrations of the Power of God.

It is, perhaps, by the phenomena of the heavens that men are most impressed with a sense of God's power. When "*the lightning flings its fiery hair across the forehead of the dark,*" and "*following thunder rolls its awful burden on the wind,*" men cannot but feel that "*the voice of the Lord is mighty in operation,*" that "*the voice of the Lord is a glorious voice.*" And when the sweet colours of the rainbow are woven in the dark curtain of the departing cloud, their hearts must warm with gratitude to Him by whom the fabric was designed and wrought.

By people in a barbarous or semi-barbarous state the more unusual appearances of the heavenly bodies have been looked upon as direct interpositions of the Almighty's hand: as precursors of famine, disease, and war, and have been dreaded accordingly. Some amusing anecdotes are told of the terror they have excited.

It is said that Columbus, when in the island of Jamaica, was reduced by dread of famine to resort to an imposition upon the weakness of the natives.

"Columbus and his crew having been wrecked, had consumed their small stock of provisions, and having to depend upon the natives, with whom many untoward circumstances had prevented them from being on good terms, it struck Columbus, who had a great knowledge of astronomy, that an approaching eclipse of the moon might serve his purpose of awing the natives. He accordingly summoned their chiefs to a council on the evening of the eclipse, and told them that the deity of the skies, whom they served, was angry with the Indians for withholding provisions from the Spaniards, that the Indians would be punished in a signal manner; in token whereof the full moon, then riding in majesty across the celestial dome, would be deprived of her light, and held in black durance. Some treated this announcement with contempt, while others were alarmed, but all were naturally anxious. When they at length saw the black shadow of the earth seizing the moon within itself, they were all horror-struck, and, hastening to the crew with provisions of all sorts, they begged the intercession of Columbus with the celestial deity that the moon might be restored, promising to serve Columbus faithfully ever after. Columbus, after retiring for some time to consult the deity, as he said, promised them that the curse would be taken off from them; and that, as a sign, the moon would emerge from her

confinement, which, when the Indians saw again traversing the heavens, they adored the astronomer, believing him to have supernatural gifts, and to hold an intercouse with heaven, whereby he was informed of what would take place in the skies. The Spaniards suffered no more upon this occasion through famine."—*Sat. Mag.*, 1838.

"An eclipse happened during Lord Macartney's embassy to China, which kept the emperor and his mandarins the whole day devoutly praying the gods that the moon might not be eaten up by the great dragon which was hovering about her; the next day a pantomime was performed, exhibiting the battle of the dragon and the moon, and in which two or three hundred priests, bearing lanterns at the end of long sticks, dancing and capering about, sometimes over the plain, and then over chairs and tables, bore no mean part."—*British Cyclopedia*, Art. Astronomy.

A few years ago, when a great comet was visible, the following paragraph went the round of the newspapers:

"The *Correspondancia Autographa* publishes a letter from Cochin China, which asserts that the emperor of that country was so alarmed at the comet that he had fastened himself in a tower, with poison and a cord, in order to put an end to his existence in the event of its causing any disaster."

But the signs of the heavens have not always been taken by ignorant people as prognostics of calamity. Men have been, and are still, found vain and weak enough to regard them as happy omens connected with the affairs of their own lives. Thus the birth of Romulus was said to have been predicted by a comet. And you will remember that in

the first part of Shakespere's King Henry the Fourth the braggart Glendower says:

"At my nativity
The front of heaven was full of fiery shapes
Of burning cressets, and at my birth
The frame and huge foundation of the earth
Shook like a coward."

The reply that is put in the mouth of Henry Percy, is well calculated to shew the absurdity of such vain-glorious boasting. He says.

"Why so it would have done,
At the same season, if your mother's cat had
But kitten'd, though yourself had ne'er
Been born.

On the day of the battle of Mortimer's Cross (which was fought in 1461 between the rival armies of York and Lancaster) there happened one of those remarkable occurrences called parhelia or mock suns. They are owing to a peculiar state of the atmosphere, which deceives the eye much in the same way that a bad piece of glass does by multiplying the appearances of the objects that are seen through it. The poet Drayton, narrating the events of the battle, says:

"Three suns were seen that instante to appear,
Which soon again shut up themselves in one,
Ready to buckle as the armies were;
Which this brave duke took to himself alone.
His drooping hopes, which somewhat seem'd to cheere,
By his mishaps neare lately overthrowne;
So that thereby encouraging his men
Once more he sets the White Rose 'up agen.'"

I think sufficient has been given to shew that the power of God has been recognized in the signs of heaven by the unenlightened of mankind, though it has been with a superstitious and unhealthy vision. There are persons who would keep men ignorant, believing that the contemplation of second causes takes from their dependence upon God, who is the first. Bacon, in the First Book of his Advancement of Learning, has met the objections of such people:

"Will ye," he says, "lie for God as one man will do for another to gratify him? For certainly God works nothing in nature but by second causes, and to assert the contrary is mere imposture, as it were, in favour of God, and offering up to the author of truth the unclean sacrifice of a lie. Undoubtedly a superficial tincture of philosophy may incline the mind to atheism; yet, a further knowledge brings it back to religion.—For on the threshold of philosophy, where second causes appear to absorb the attention, some oblivion of the highest cause may ensue; but when the mind goes deeper, and sees the dependence of causes and the works of Providence, it will easily perceive, according to the mythology of the poets, that the upper link of Nature's chain is fastened to Jupiter's throne."

Let us examine whether we are likely to lose sight of God's power by advancing in the paths of science.

To ignorant persons the earth appears to be the principal object in creation. The sun, moon, and stars to them are simply *lights*, in daily revolution round the earth. But Astronomy declares that the earth is but one of a number of worlds, of which Jupiter and Saturn are the principal in

point of size. That it would take 1,400 such worlds as ours to equal Jupiter, and 1,000 to equal Saturn. That Jupiter is attended by four bright moons, Saturn by seven, and Uranus (a planet 80 times larger than the earth) by six. That the sun is a glorious body, 1,000,000 times larger than the earth: that it is in fact so large that if its centre were placed where the centre of the earth now is, its body would fill the space between us and the moon's orbit, and extend 200,000 miles beyond. That round this sun the earth and planets revolve, in different periods, and with different degrees of velocity: the earth being hurled through space at the rate of 20 miles a moment.

These declarations are established—they are *truths*. Are they not calculated to enlarge our opinion of God's power? But let us come to *probabilities* founded upon them, and similar truths, and we shall be lost in amazement at the extent of that power.

There is every reason to believe that the fixed stars are suns resembling our sun, and that each of them has worlds revolving round it, similar to our world, and teeming, as our world does, with life—for God has made nothing in vain. And probability does not end here. And, that you may quite understand what I am about to state, suppose yourselves upon an immense plain, at night, standing in the midst of a vast number of lights, some scores in breadth, but many thousands in length; and that at different positions upon this plain there

are similar groups of lights. You will readily conceive that those lights on either side of you will stand out, clear and distinct; that those immediately before you will be distinguishable; but that the individuality of those more remote will be lost in their united blaze.

Now our sun is supposed to be one of a vast number of suns arranged in a somewhat similar manner to the lights we have been talking about. On either side of us the stars are distinctly seen. Above us is a broad band of light, commonly called the Milky Way, which seen through a powerful telescope is found to be composed of myriads of stars. At different points of the sky there are masses of light of a similar nature to the Milky Way. They have received the name of nebulæ from astronomers. And it was the opinion of the great Herschel that the whole of them was in motion round some central point.

Let me now call your attention to the structure of the earth on which we live. I will not trouble you with theories respecting the mode of its formation; but will simply point out some of the indications of the stupendous nature of the revolutions it has undergone, and of the wonderful power the Almighty has displayed in directing its vicissitudes to the good of his creatures.

By Him the valleys have been exalted, for the mountains were once the bed of the sea. Marine fossils may be gathered from the tops of some of our highest hills.

The coal beds, to which England owes much of her greatness, are the remains of vast forests of pines, cacti, euphorbias, ferns, and palms—or rather, of plants resembling those species—that have been buried in some convulsion of nature. The remains of 300 different kinds of plants, having no living representatives, have been found in the coal measures.

The secondary limestones appear to be almost entirely composed of the remains of shell fish. In one piece of rock, weighing only an ounce and a half, 10,000 microscopic shells have been counted.

Skeletons of animals that could not exist in the present state of our globe, of enormous size and marvellous form, dragons and reptiles, and unwieldy mammals, are constantly met with in our stone quarries. Countless ages must have elapsed since they were buried in the sand and mud, that were afterwards converted into stone.

And how wonderfully is the power of God exhibited in the 100,000 different kinds of plants that clothe the surface of the earth, and in the countless millions of living things that people earth, and air, and sea.

God is not great in great things only. His power is equally displayed in the animacule whose ocean is a drop of water, and in the monster 100 feet in length that tempests the mighty deep. It is seen alike in the dwarf alpine willow, of which "half a dozen trees, with all their branches, leaves, flowers, and roots, might be compressed between two of the pages of

a lady's pocket-book without touching each other," and in the mighty Banyan tree of the Nerbudda, which has given shelter to an army of 7,000 men. Space does not limit God's power. The larger our telescope the greater are the wonders we command: the more powerful our microscope the more numerous are the objects we discover. There are creatures living upon other creatures, as the ticks upon sheep—these are called parasites; now the microscope has revealed a parasite of a parasite.

I think, then, we may see that the Omniscience, the Omnipresence, and the Omnipotence of God are stamped upon his works. The heathen have seen this, for the idols brought from Nineveh by Mr. Layard, have the wings of eagles, and the bodies of lions: "the sublimest images that could be borrowed from Nature to denote the power and ubiquity of God."

The Second Part shall contain illustrations of God's Wisdom.

We judge of the wisdom of God in the operations of Nature from the wonderful adaptation of the means to the end. It is apparent wherever we turn our eyes. The flowers of the field, the beasts of the earth, the fowls that fly in the open firmament of heaven—all things that God hath made, behold they are very good; in *wisdom* He hath made them all—the earth is full of his riches.

I will call your attention in this part of my work to the

plants particularly. They afford abundant indications of God's wisdom, and they perform no mean part in the economy of nature. They form the connecting link between animate and inanimate matter.

Animals are taken from the earth; and when they die they return to the earth. In life they are sustained by earthy particles. It is the plant that converts the earth into food for man and beast. The mode of this conversion is simple and beautiful. The spongioles* of the plant absorb the juices of the soil; these juices ascend the stem; when they reach the leaves they are brought into contact with the air, which, by a chemical process, converts them into what is called *proper juice*. This juice descends between the old wood and the bark, and hardens into new wood. The vegetable substances thus secreted are four: gum, sugar, fecula, and lignine. But the all-wise God has modified these in the most marvellous way to supply the various wants of his creatures.

The bare enumeration of the necessaries and luxuries we obtain from plants would occupy no inconsiderable portion of time. I will mention but a few, whose origin is least familiar to the majority of people:

Sago is obtained from the stem of the Landan tree, which grows in the Moluccas.

Tapioca, from the tubers of the *Jatropha Manihot*, an American plant.

* The minute openings at the ends of the fibres of the roots.

Arrow-root, from the underground stem of the *Maranta Arundinacea*, a kind of reed growing in the East and West Indies.

Cloves are the flower-buds of the *Caryophyllus aromaticus*, a tree which grows wild in the Moluccas.

Cinnamon is the bark of a kind of laurel (*Laurus cinnamomum*) found in the eastern parts of Asia.

The Nutmeg is the seed of *Myristica officinalis;* and Mace is the covering which separates it from the husk.

Ginger is the root of a kind of flag (*Zingiber officinale*), cultivated in the East Indies.

Camphor is a gum obtained from a forest tree, the *Laurus camphora*, of which extensive groves are met with on the banks of the Canton river in China.

Capers are the leaf buds of a shrub (*Capparis spinosa*), a native of the south of Europe.

Cayenne is the ground pod of the red Capsicum of India.

Plants that are hurtful to some animals are beneficial to others. The horse, the sheep, and the goat feed upon the water-hemlock of Europe, which is certain poison to the cow. The larva of *Alstrœmeriana* (a moth) feeds upon the hemlock —upon that which poisoned Socrates. The stinging nettle is the favourite food of numerous insects, among others, of the caterpillers, of the beautiful Red Admiral and Peacock butterflies.

> "Even bees, the little almsmen of spring bowers,
> Know there is richest juice in poison-flowers."—*Keats.*

All parts of plants afford food to one living thing or another. Consider the oak, which is more prolific in animal life, supplying more insects with food than any other tree. Nearly 2,000 kinds of living things derive their sustenance from it. The grubs of various kinds of Cynips feed upon the roots, the branches, the buds, and the flower-stalks. The leaves supply food to a variety of caterpillars, and to the cockchafer or oakweb-beetle. The bark is the residence of *Scolytus pygmæus*, and the very timber is eaten by the grub of the stag-beetle.

Is not the wisdom of God to be seen in the economy by which nothing is wasted, and every want supplied?

Another important office that vegetation is found to perform is the purification of the air. The air is composed of various gases, the principal of which are oxygen and carbonic acid. Animals in respiration consume oxygen, and discharge carbonic acid; but plants consume carbonic acid and discharge oxygen, and thus the balance is maintained.

I will conclude this portion of my work with an instance of God's wisdom, as it is exerted for the reproduction of the plant.

The *Valisneria spiralis* is a plant that grows under water. It is a native of the South of Europe. Its flowers are diœcious. To secure the fertility of the plant, it is necessary that the pollen or fine dust of the male flower should be brought in contact with the female blossoms; but how is this

to be accomplished? It is effected in this manner: The female blossoms have long stalks, twisted like the spring of a bird-trap. When these blossoms are ready for the action of the pollen the stalks untwist until the flowers float upon the surface, where they open. The male blossoms are in the shape of bladders, and have very short stalks; but when the pollen they contain is ripe they detach themselves from these, rise to the surface, surround the females, and expand. The female blossoms are closed as soon as their fertilization is accomplished; their stalks are gradually coiled up; and the seed is perfected beneath the surface of the water.

The third part shall contain illustrations of the Goodness of God.

God, without disturbing the general order of things, could have given every plant as offensive a smell as that of the stinking hellebore, as bitter a taste as that of rue, and as unattractive a colour as that of the navelwort. He could have rendered every sight hideous to man, and every sound discordant, instead of making, as He has done, "all nature beauty to his eye, and music to his ear." Herein is a striking instance of God's goodness. Another may be seen in the fact, that a severe winter is usually accompanied by an unusual supply of hips and haws and other berries, the winter food of birds.

"A great haw year,
A great snaw year,"

says the north countryman. Indeed, so apparent is God's

providential care, such mitigating circumstances attend what would otherwise be great calamities, so well is "the back fitted for the burden," that men have coined several proverbs to express their sense of God's goodness in this respect.—The most beautiful of these is, perhaps, "*God tempers the wind to the shorn lamb.*"

The life of the large white butterfly, of England, affords a curious insight to natural history to those who have not, studied the subject; and it shews the goodness of God in two different lights, as it is exemplified

1st. In the protection of insects.

2nd. In the prevention of an undue increase of them.

The large white butterfly (*Pieris Brassicæ*) feeds upon the juices of flowers. How wonderful, then, is the instinct which teaches it to lay its eggs upon the cabbage—a plant totally different from those which supply its own food; but the one most suited to the wants of its caterpillars! Every one of the eggs it lays is under the care of Providence; for be it remembered, that that egg, minute as it is, bears an infinitely larger proportion to the human frame than that frame does to the universe; and the life of the grub within the egg a far larger proportion to human life than that life does to eternity.

In about three weeks after the egg has been laid, the caterpillar breaks forth. It grows rapidly, changing its skin three or four times before it reaches its full size. It changes the skin of its whole body, even to the eyes.

It is necessary that the caterpillar should be a glutton, for it has to prepare and strengthen itself for a fast of many months' duration. Accordingly it eats voraciously. It has many enemies. The most formidable of these is the ichneumon fly. This is a small black insect which settles on the caterpillar's back, bores a hole in its skin, and lays its eggs in the wound. The caterpillar lives on; the eggs of the ichneumon are hatched; the grubs feed upon the fatty portion of the caterpillar, growing as it grows. The time comes for the unfortunate insect to take its chrysalis state, and it seeks a convenient spot for the change; but the ichneumon grubs, finding no more food in preparation, hold a grand carnival upon its vitals, eat their way through its skin, and wrap themselves in their silken cocoons for the winter. But supposing the insect to have escaped the birds, the ichneumons, and its other enemies, it casts its caterpillar skin and legs, and appears a limbless chrysalis, suspended by a thread to the nearest object in a most remarkable way. It spends the winter securely protected from the cold, and in spring bursts forth into life and beauty.

The various means of escape from their enemies, with which God has provided his inferior creatures, exemplify his goodness in a remarkable manner.

The jointed armour, the offensive weapons (the sting, the nippers, the poisonous bristles, &c.), the high motive power, the forbidding aspect—assumed or laid aside at will—are so many preservatives which, as a rule, fail only when an undue

increase of the creatures that possess them renders a partial destruction of those creatures necessary to the comfort of the higher orders of existences.

I have alluded to the habits of the ichneumon. The caterpillar of the puss moth (*Cerura vinula*) is furnished with an extraordinary means of repelling the attacks of this formidable foe. It has a double tail, the branches of which can be opened till they form a considerable angle. These branches are furnished with red thongs, and are a pair of perfect whips, which can be used by their owner with considerable vigour to lash its enemies away.

The striking resemblance borne by many insects to objects met with in their habitats, is a great safeguard to them.

The caterpillar of the peppered moth (*Amphidasis Betularia*) is found on young oaks in England. It is the counterpart of an oak twig. Its colour is green; it is several inches in length; when at rest it clings to a branch by its hind legs, and holds itself stiff and straight. Its head is brown and bifid, and exactly resembles two unopened leaf-buds. Rosel remarks upon the consternation of his gardener who attempted to break off, from a plant he was pruning, a thing which proved to be endued with feeling and motion—a caterpillar allied to the species I have mentioned.

The sword-grass moth (*Calocampa exoleta*) in repose resembles a knotty piece of wood; and the lappet moth (*Gastropacha quercifolia*), a bunch of dried leaves.

As far as we can judge, insects are incapable of feeling

acute pain. You may run a pin through a sleeping moth without disturbing it. You may turn the tail of that voracious insect, the dragon-fly, to its mouth, and it will make a meal of it. A crane-fly will fly away, and follow its instincts, and live out its life, though half its legs be gone. At the same time we have no reason to infer that insects do not *thoroughly* enjoy their existence. Who that has stood by an ant-hill or a bee-hive, and watched its busy inhabitants, could doubt that there were very powerful interests and desires known to the little beings who laboured so industriously and so well? And enjoyment lies in the possession of interest and in the satisfaction of desire.

The last proof of God's goodness that I shall allude to, is the very power (which we have been considering throughout this work) which creation has of drawing us to the Creator. God will not have us forget Him. We are surrounded by monitors charged by Him with messages of love. Every feature of the fair face of nature is an index to nature's God. We contemplate its beauties, and we are irresistibly led to consider the perfection of Him from whom they sprung, until we are ready to exclaim with the poet—

"These are thy wondrous works, Parent of Good,
Almighty, thine this universal frame,
Thus wondrous fair—thyself how wondrous thou!
Unspeakable, who sit'st above these heavens,
To us invisible, or dimly seen
In these thy lowest works, yet these declare
Thy goodness beyond thought, and power divine.